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MAVER CLEVER, HEAD OF MAVER RIVER, CONDILLERAN, PATAGONIA.

From a photograph by J. A. H. H. H.

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PATAGONIA

By J. B. HATCHER,

Of Princeton University

Patagonia (from the Spanish *patagon*, a large or clumsy foot) is the name commonly applied to that portion of South America lying between Rio Negro on the north and the Strait of Magellan on the south, and embraced by the Atlantic and Pacific oceans. It thus has an extent from north to south of about 1,000 miles and a maximum breadth of nearly 500 miles. The name dates from 1520, when Magellan, on his voyage around the world, observing near his winter quarters at San Julian certain large human footstept (patagones) gave that name to the country.

Although Spanish settlements were founded at San Felipe and at other places in Patagonia as early as 1579, more than forty years before the landing of the Pilgrims at Plymouth Rock, yet it is still a very sparsely settled and little known country, especially throughout the interior of the central region. With the exception of the settlements along Rio Negro and the Welsh colonies on the river Chubut, there are no important settlements in the interior, and in the country lying to the south of the latter stream the entire settlements are confined to a few sheep farms scattered along the eastern coast from Port Desire to Sandy Point (Punta Arenas) in the Strait of Magellan. On the western coast there are a few unimportant settlements at Otway Station and Skiring Water in the extreme south; while on the north most of the settlements are confined to Chiloe and the other larger islands. The western coast of the mainland and most of the interior is inhabited only by roving bands of Indians, which

in the former region include closely related tribes of Canoe or Channel Indians who live almost entirely in small open boats of native design, constructed with considerable skill from large pieces of bark, either from the antarctic deciduous beech (*Fagus antarctica*) or from the evergreen beech (*F. betuloides*), sewn together with sinew or flexible whalebone. The latter is thrown up in considerable quantities along the shores of this coast. At present the Indians are usually clothed with bits of cheap calico fashioned into rude garments, that of the women resembling loose skirts suspended from the shoulders and usually extending somewhat below the knees. While for the most part the men and women are at present clothed with some sort of cloth, usually obtained by barter from the whites, yet examples are not entirely wanting of individuals still clinging, through choice or necessity, to that more primitive state in which a narrow girth about the loins is deemed sufficient, with sometimes the addition of a piece of seal skin held above by a single thong passing around the neck and over the shoulders, and below by another about the body, so that it may be readily shifted to any desired position according to the direction of the wind. These Indians feed almost exclusively upon shell-fish which they are able to pick up along the shore, while the remains of an occasional seal or sea-otter cast up by the waves, or the same animals taken alive with their spears, serve to vary their diet. Perhaps in no other people in the world are the actual necessities of life reduced to so few as among the Channel Indians of this region. With no constant habitation, they move about from one sheltered cove to another, so that their occupation of any particular place is entirely dependent upon, first, the abundance of the mollusks upon which they live, and, second (when these are well-nigh exhausted), upon the condition of the weather. On a few earthen sods in the bottom of their canoes they keep constantly burning a small fire, which always seems just on the point of going out; and over this they all bend when not engaged in collecting the animals for food, which they usually eat uncooked and without other preliminary preparation. For their shelter on land, notwithstanding the inclement weather that prevails almost continuously, they erect exceedingly inefficient and primitive structures consisting of only a few branches of trees, the lower ends of which are stuck in the ground in an almost complete circle, while the upper ends are carefully thatched together, thus forming a sort of low, conical "wickiup" with an opening on one side. These,

together with their canoes, two small paddles with which the latter are propelled, one or two spears or harpoons made of bone for the capture of seals, and one or more rather well formed vessels made of rushes and usually of the capacity of about a gallon (used in gathering shell-fish), fulfill all their domestic requirements. Notwithstanding the exceedingly primitive manner in which they live, it is evident from the great accumulation of shell heaps in many places periodically occupied by them that they have inhabited this region for a considerable period, during which little if any alteration has taken place in their habits and customs.



TEHUELCHESIDE OF CO. FRAGA

From a Photograph by J. H. Hatcher

The Indian tribes east of the Cordilleras are of Tehuelche or Aruncanian stock, and in general appearance, habits, and customs they are quite different from and far superior to those of the western coast. Perhaps as a race no people in the world are better developed physically than are the Tehuelches of southern and eastern Patagonia. While their size has been considerably exaggerated by many of the earlier travelers, yet the fact remains that they are a large and physically well-developed race. The men have an average height of about five feet ten inches and the women of about five feet six inches. In both sexes the body is

well formed, and while the features are without doubt far less striking than are those of certain of our tribes of Indians, yet their countenances are usually such as to inspire confidence in their peaceful intentions and to allay feelings of uneasiness in the mind of the traveler who may be unwillingly thrown among them. In the construction of their "toldos" or tents they have advanced one step at least over that shown by many nomadic tribes living in North America or elsewhere, in that while having no permanent residences, they are nevertheless not entirely dependent upon the resources of the immediate vicinity in which they happen to locate for materials with which to construct their shelters, for they always carry with them a covering usually made of skins stitched firmly together in such a manner as to fit more or less precisely a framework of poles also carried for the purpose. With some tribes of North American Indians these easily transportable habitations are known as "tipis," the frame of which consists of a series of long poles arranged in a large circle at the base and meeting above, where they interlock in such manner as to afford mutual support, and on the outside of which the covering, formerly made of skins but now usually made of canvas, is stretched, thus forming a perfect cone when closed. In all such habitations among our North American Indians, so far as I am aware, this entire inclosure is unobstructed by partitions, and no attempt is made to divide the interior into separate compartments so as to afford a certain degree of privacy to individual members of the family.

The toldos or tents of the Tehuelches are each usually composed of the skins of about fifty adult guanacos sewed together in sections, which, when fitted together, are so designed as to form the top, one side, and both ends of a huge box, one side of which is much higher than the other and is left open. The framework of this box consists of three parallel rows of poles, forked above, planted in the ground at a distance of about four feet from each other in the direction of the length of the box and six feet in the opposite direction. The poles forming the first row or that on the open side of the toldo are usually about seven feet in height, in the next row, running through the middle of the interior, they are about five feet high, while three feet suffices for the series at the rear. In the forks of these upright poles are laid, and over the whole the skin covering is stretched. These toldos are usually about twenty feet long by twelve feet in width. That portion of the interior between the two higher series of up-

rights may be considered as the living room, while in the rear small partitions extend from each of the posts to the third row to the opposite one in the middle row, thus dividing this space into a series of sleeping compartments from four to six feet in width, and sufficient to accommodate one or two persons. I think this condition of affairs should be regarded as a decided advance over that found in other tribes with transportable habitations, and that it has had a decidedly beneficial influence upon the social relations of the Tehuelches I do not doubt. That we have here represented three stages in that development which has



TEHUELCHES FAMILY AND TOLDOS

From a Photograph by J. B. Baileys

led up to the nineteenth century dwelling with all modern conveniences can hardly be doubted. Most primitive of the three is that of the Channel Indian, who once in each week or two throughout his entire life spends perhaps half an hour in gathering the branches to construct the rude "wickingup" which forms his ideal of a domestic habitation.

The Tehuelches of southern Patagonia are almost entirely unacquainted with the use of firearms, but they have an abundance of horses and dogs, by the aid of which, together with their bolle-

deros (holas) they are able to capture guanaco and ostriches more than sufficient to supply them with food. From the skins of these, together with those of other animals, they construct the coverings for their lodges, make their clothing and bedding, and have sufficient left with which to manufacture the beautiful fur "capas" or mantles so highly prized by the Europeans. For the latter they consequently find a ready sale, from the proceeds of which they derive a revenue ample for the purchase of considerable quantities of "wachaki," which those better qualified than myself to judge consider as very bad whisky. Perhaps to some there will be a satisfaction in the reflection that "bad whisky, sooner or later, makes good Indians."

The surface of Patagonia is naturally divided by physiographic features into two regions—an eastern comparatively level plains region and an extremely mountainous western region. The latter extends in a narrow strip throughout the entire length of Patagonia and exhibits everywhere intensely rugged mountains, clad at their bases with luxuriant forests, while their summits are forever covered with great fields of snow and ice, which form glaciers often descending far below timber-line and constituting the sources of many of the numerous mountain torrents emptying into the Pacific, as well as most of the larger rivers of the eastern region, which after emerging from the mountains follow deeply eroded valleys in the plains and discharge their waters into the Atlantic.

Politically Patagonia is divided into essentially the same districts as physiographically. The western or mountainous region belongs to Chile and is mostly included in the territory of Magellan, with the seat of government at Punta Arenas. The eastern or plains region belongs to Argentina and consists of the territories of Santa Cruz, Chubut, Rio Negro, and a part of Neuquen.

To the absence of exact knowledge regarding the real physical features of this region is due the vexatious boundary dispute at present existing between Argentina and Chile. Formerly the loftier ranges of the Cordilleras were supposed to form the natural watershed of this entire region, and in the earlier boundary treaties negotiated between the two countries it was stated that a line connecting the highest peaks which divide the waters of the Pacific from those of the Atlantic should constitute the national boundary line. It has since been ascertained that in many instances, at least, streams flowing into the Pacific cut entirely through the Cordilleras, and in some cases have their



sources were out on the plains, so that, were former more lary
treasures later reveal, certainly, the the territory supposed to be of

Not only has there never been any attempt at a topographic
survey of the country, but it might not vast areas over long and
region of central Patagonia, the watercourses as known on all
the government and current maps are not yet a general whole
in the region between Lake San Martin and the territory of
Neuquen is attached a map showing the locations of the principal
streams flowing towards the Atlantic of the Pacific, as
ever when it is noted.

That part of the region which was visited and traversed by
the writer was his assistant, Mr O. A. Peterson, during recent
ex, found was in behalf of Princeton University and the Bureau

between the headwaters of the Rio Colorado and Rio
the Strait of Magellan. The principal overland route will be
found located on the map. From different points along this
route shorter excursions were made in all directions.

The plains region of Patagonia may be considered as consist-

consist, rising in places to a height of nearly five hundred feet
from the first step in the series, and from it as the ascending
slopes gradually increased in elevation until along the base of
the mountain as an altitude, according to Barrow of 10,000 feet is
attained. The escarpments constituting the limits of each of

lines, which conform not only to the general direction of the

Patagonia. This series of benches or steps may be seen not only

but also on either the one or the other side, sometimes on both,
of all the greater watercourses of this region distant from the
coast and near the mountains. They doubtless represent suc-

cesses of the Pliocene period. The occurrence of this series of



valley of Patagonia were in existence prior to the last

there was distributed over this region the great snowfield or

glacier. These basins along the water-courses are not merely

and Patagonian beds, as shown in the recent exposures. They

the waters of the Atlantic. Some of the more important of these

Atlantic oceans, as has been pointed out by Darwin.

Another prominent feature over the Patagonian plain is the

not extend into strata forming the sides of the valleys. Such

the southern side of the Rio Chasicu of the Chasicu river about

valleys were native throughout a considerable period in Ter-

lands. That they were native during the separation of the South

between successive strata of these beds, which, owing to the

interruption

* See also the history of southern Patagonia. Vol. 100, pp. 100-101.

These basaltic volcanoes are scattered over the plains in a not entirely regular manner. As before stated they occur in groups, there being usually from three or four to as many as a dozen in each group within a radius of perhaps five miles. These crater

mountains begin at the eastern extremity of the Cordillera de las Montañas to as far north as the country visited by us at least, and most likely for a considerable greater distance. For the most part they are found over an area extending parallel with the Cordillera and within a distance of only a few hundred and twenty miles from the Gulf of Mexico. They rise but a few feet above the surface of the surrounding country, and some of these may not be visible

at of the materials resulting from the intersection of two or more streams in flowing. It may even rise several hundred

having been active volcanoes with comparatively recent types.

Whether these craters should be considered as being independent or not is greatly a matter of the sort of view as to having received their molten materials from the same reservoir, and a independent system of materials of which would be a reservoir, it is difficult to say. Even the similarity of the lava is known to occur in the two regions, however I should be inclined to the former view. Between the series of

of the Cordillera river there are wide open plains, or rather much struck by other extinct volcanoes or lava fields.

Another interesting feature prominent in the topography of

100 to 200 feet or more in height, scattered over the surface of the plains. I have described these lakes and discussed their origin in a previous paper already cited on the geology of the region.

At a distance of ten or twenty miles from the Cordillera the

is composed of much coarse materials. Near the base of the mountains the materials consisting this formation are not dis-

loses its level, plain-like appearance, and presents into even and rounded hills composed of heterogeneous masses of

ing of stones, rounded boulders, and other materials. In some intervals were visible deposits of terraces and moraines of late Pleistocene or early Quaternary origin. Such deposits are especially noticed down a little farther up the valley near the confluence, where they are free of the great thickness of the ice barrier. At the meeting place the river now and then discharges quantities of fresh water which are immediately refrozen, and are thus deposited in all along the base of the ice barrier. A few of the most important of these are lakes Argentina, Victoria, San Martin, and Henry Jones. All these lakes extend far back into



the interior of the continent, where they are frozen in numerous places. None of the lakes

lakes are as yet in operation.

There are no more rugged mountains anywhere in the world than are the Cordilleras of Patagonia. They extend as the long range on the east and are seen on the west to a long series of places of no less than 1,000 feet, and present many of the peaks without so much as a ring of mountains.

far as has yet been discovered for more than a thousand miles. On the west they are traversed by a labyrinth of bays, channels, and islands and inland watercourses which for beauty and intricacy are unsurpassed and probably unequalled on any other coast.

The most only rugged ranges of these mountains and of the Pacific coast is doubtless large & has to the extent of a comparatively recent age of the former, for from the highly improved position of the Argentine strata & the Patagonian belt a line along the eastern base of the mountains it is evident that while the great elevation of a later time have taken place during Mexican times, yet the great mass here spoken was raised up & out of the blue sea, and hence they now present so many sharp peaks, and lines of rugged angles which the erosion alone is in nature have not

to not harden & grown with their surroundings, for only that storms which forever rage about the shores and the terrific onslaughts of waves that constantly attack the bases. Nature

are lowered and the sharp angles rounded by erosion, not so

more vivid & more are gradually softened with age.

According to de Bora, Patagonia may be divided into three

regions, for one of these regions may be fairly considered as forming the average of plants found in the other two, as by the quantity and quality of the vegetation. The first of these

narrow belt of fairly good grazing lands, extending along the coast from the Strait of Magellan to Port Desire. A large part of it is now taken up by sheep farmers, mostly from the Falkland Islands & Scotland, with a few English & Germans.

equally barren near Valparaiso. It extends to the western border

scarcely a worthless soil for the support of man or beast.

America. The third region is that of the Cordilleras, as I have before said. One of our two branches to species and in the formation of vegetation.

Though not the first two regions there are unknown. The vegeta-

tion over the land is brought of more than a few feet. Among the more common of these grasses are the *Stipa* and *Poa* species, with a rounded color of patch. They belong to different families and are changed by the insects and according to the color of the leaves as "mole green" and "mole brown." They form a "South American tea," which is largely used in Patagonia and elsewhere. A species of *Geranium* ("white tea") with bright yellow flowers and dark purple, red or brown, and so forth in color, is found everywhere, with a long low watercourse bar in the interior. The most common species of *Geranium* is of the same color and has a lot of five or six foot long and brown. The plants are as much as of these species provide a lot of fuel for the travel of the Patagonians.

In the Cordillera forests along the coasting for the most part of two species of wood, *Juniperus communis* and *J. horizontalis*, the winter plant. *Juniperus communis*, and toward the north a few species of *Juniperus*. On the eastern slopes of the mountains the vegeta-

tion that grows on the west side of the mountains is *Juniperus communis*, the deciduous species. This vegetation prevails especially near the headwaters of Rio Chilo and Rio Santa Cruz and on all the upper tributaries of Mavor over a stream of the mountain which we discovered in the region leading to the Pacific, and among the lower of several Rio into Mavor, the late growth of the territory of Santa Cruz.

The growth of all the forests of the Cordillera mountains, the plants, and which occur in the greatest profusion. The stems of the trees, the leaves of the trees, and the grasses over the ground itself, are often covered, on the sides of several inches.

Things plants, if I may so call them, that I have ever seen.

The names of the plants and animals in regions differ more

of the other. The most striking and most abundant animals met with over the plains are the guanaco, *Lama guanicoe*, the vicuña,

Ch. maculosa and *C. maculifrons*. The former species is the red-brown one, and is of a pale gray color with a black spot at the base of the tail, and is quite tame and exceedingly common everywhere on the plains. The second and much larger species is rather shy, and is found only in the mountains. The panda or bear is common in the mountains, and is a good deal more common in the mountains than in the plains.

Since they were almost exterminated in our water over a large

region, among them. Their skulls and skeletons are now to be

still not much. Only one species of armadillo is still common in the region visited by us, and it has not yet been found of the Yangtze river. Deer are absent on the plains, but the species is found

saw several others. It never observed one with more than two points on each horn. We have also a record of a larger species of deer said to be present in the mountains further northward.

of the mountains where the entire earth for a depth of nearly

Gully in the sides of the hills, and they become red and

form of the soil and rock such as to render it more easy of being removed by the falling rains. Among these rednesses which

are very common in these are especially two species of them are known and by and properly for carrying on scarcely be over-estimated. For the rednesses were very abundant and of the

other species are now rarely seen there.

There is a considerable variety of birds in Patagonia. Waterfowl are especially abundant, as are also birds of prey. I proc-

ured a very distinct of equal area elsewhere in the world. Several species of plover, grouse, and snipe are to be found on the pampas, while thrushes, wrens, and sparrows are well represented

on the coast of the Atlantic as far northward as Port Desire. The crow, or so-called ostrich, is abundant in the plains, and is occasionally met with in the mountains. Beautifully colored red

are plentiful, while two wood peckers and two or three tanagers, juncos, and five species of owl were taken.

There were a few or three species of spangled colaptes varieties. Snow b-

tail. Frogs are present though rare, but we never saw a snake

anther. Butterflies were represented by a few species. Those usually of the less conspicuous varieties. Dragon flies are rare

and Hymenoptera are not abundant.

HATCHER'S WORK IN PATAGONIA

On February 20, 1896, Mr J. R. Hatcher of Princeton con-

tributed from both institutions, those from the latter so being from the collection at the Argentine; and during his stay he received

orary members of the National Geographic Society

and, including the Indians. Outfitting here with a great deal

at Punta Arenas, making extensive excavations in paleontology and natural history. Punta Arenas being a important station became the center of migration a few years ago in consequence

with Indians. Returning to Ushuaia, Mr. Hatcher and his

party left in 1896 and from that date until April, 1897 they saw no human beings save themselves. They journeyed first west

ward. It heads in the proper east of the Cordillera, but flows

constantly. It is fed by glaciers often of considerable magnitude, it is swift and turbulent, so that it was found impracticable to cross it, and indeed to trace its course, with the facilities at command, more

than of the Cordillera itself. They were not without the incidents connected with exploration of uninhabited countries. Some of these were of serious character. In one case Mr. Hatcher,

are characteristic of Patagonia, with temperature but little above
 unity taken, and kept kind the chief part of the camp fire.

and about Sierra del Fuerte, in the course of which many new

extent of the surveys may be gained. He returned to Princeton
 in July, 1897.

He has been led to the collection of specimens, which he has re-

ceived in a notably successful manner. The geographical results are
 given summarily, though with excess of novelty, in the pre-

article in the *American Journal of Science* and the *American*
Geologist.

of geographic development. One of the characteristics of the
 region is the depth of soil, another is the purity of the lava,

found over the plateau. These features indicate that the lava is
 that the Patagonian lava is a recently been raised from
 ocean bottom to form dry land. Certain other features give
 really no evidence in relation of the manner of lifting. The

area the configuration, on the whole, suggests a recent sub-

and the volcanic front no longer extends while there is a line of

fresh water takes skirting the eastern mountain front, which, now, perhaps is partly held in place by ancient dunes, something

ing toward the Atlantic—and had these features, as well as what others, it is safe to say the tilting was greater among the eastern shores of the continent, so as to produce a general warping or westward tilting. The history of the evolution of the continental formations has been complex, as shown by the geologic evidence.

As the present Thomsen Passage, at the course of Mayer river may have been a small lake the present Magdalen; for the

uplift and westward tilting.

Mr. Ha cher has just sailed for Punta Arenas to continue his explorations and surveys. W. J. M.

THE SUSHITNA RIVER, ALASKA

By W. A. JERRY

The Sushitna,* though an almost unknown river, is one of the

the latter is somewhat larger. It has a delta at its mouth, be-

The river is divided into many channels spread out over an broad flats, rendering steamboat navigation difficult. The total

current of the river so I think to be great. There are a few rapids up the stream. The tide flats surround the mouth are bare at low water for a distance of nearly ten miles and are very dangerous as to pass. In the treacherous glacial mud a rowboat is liable to sink, and to be held afloat by that the river is very low, when a creek with incredible rapidity, will fall to flood it.

The mouth of the river is nearly opposite Tominacine arm, a branch of Cook inlet which is a great breeder of storms. It is

*Sushitna means "the great muddy river."

at daylight in April on these flats, can be to enter the river or to approach near to the mouth, being prevented by great shoals

where overflow is checked, a tangle of willows and other wood which consists of scattered groves of spruce and birch.



An idea of the volume of water the river carries can be had the influence of tide. Just above the station the river for the space of a mile crosses its valley diagonally. Here the stream divides into two, and is very deep and swift, some of the water of the two streams is which carries the more water, and rough

the one which are numerous.

The Kuskokwim Indians come down the western branch of the river. They say there is no easy passage from the Kuskokwim to this branch of the Sushitna, which is all I find from a low range of mountains forming the watershed between these two

government charts of previous years.

If the so-called Alaskan range exists it is not far from further west than is indicated on the charts for I have been where I could see at least 100 miles west of Sushitna river, and could see no indication of such a range in that direction. A vast, almost

all these great swamps, extended to the west as far as I could see with a rather poor piece of field-glasses. It is true that early in June (1897) I could see patches of snow to the west, which

and high as in the previous year the snow was not gone in July. The sailors report a large lake on this western branch and say that the stream forks six days' journey from its mouth.

very crowded. Only once in 100 miles above the junction is can

in by night boats on both sides. Many islands are scattered

portion of the river white-caving banks falling trees, and the swift current make the journey both difficult and dangerous. Nowhere could we make any headway except by pulling or towing, crossing and recrossing the labyrinth of channels to escape dangerous places. One-half of the boats that have ascended the Sushitna in any season have been lost, either by being swept

down. Luckily, however, only one life was lost during the last season, that of a Mr. Laporte, of Seattle.

The few remaining Indians between the Kuskokwim and the Sushitna rivers were so severely about 12 or 20 miles back from the river and it was small boats that enter the Sushitna from that side.

While ascending this portion of the river we had ready glimpses of the higher peak. Mr. McKinley is in the valley to

ington. Everywhere you go in clear weather you can see the

of foot above all the other mountains. Two of the three ranges are covered with eternal snow and consist of conglomerate hills.

The best range in front of this great peak is very broken and irregular. We could see clouds that showed fronts of several

ices and snowbergs. I have talked with about thirty persons who have seen this great peak from the Sushitna valley in the last two summers, and they all agree that it is the highest mountain they have ever seen. One party who had been in the

of the mountains of that group.

The Indians of Cook Inlet have called this the Polestar mountains as that portion of Alaska. It appears to me higher than

beachhead on a clear day on our return voyage.

I had also a chance to compare its height and position with that of Mt. Denali on a clear day when we were camped on an island at the mouth of the river. Field glasses brought out the

according to the government chart, 100 miles distant from our point of observation. Nothing coming to greater distance. Mt.

About 90 miles above the lower forks the river again branches into three large streams. The western fork seems to occupy the

the largest and at certain seasons of the year carries the most water. In the last days of June, July, and August the western branch, fed by the great snow fields and glaciers of the ranges about Mt. McKinley, is a roaring torrent, a flowing sea of mud as much as dry matter does it carry in solution. Parties who have ascended this branch say that about 90 miles up, it forks into two nearly equal streams. The southwestern branch they

but many are of the finest of the great range. They are

two rivers.

The branch we followed was the middle fork, which soon en-

tered a rapid from what we could gather from the Indians that there was a waterfall. In the evening, but which does not seem to be

rapids in which no boat could go. The walls of the cañon are

high at the base of the great walls. We ascended the mountain

peak about Mt. M. Kinoy, which bore a little north of west.

The Copper River or M. Kinoy, I think, were called the upper waters of the river, all agree that the Copper River is near the headwaters of this sea and not far from the Tatum. As the government has placed the main source of Copper River north of the V. range of

land. When Capt. Allen reached the mouth of the Copper River were a perfectly nearly equal in size. He followed the branch

in our need. He goes on to say that the stream diminishes in size rapidly as he ascends it, and soon becomes less than 100

the Indians, so that the Tatum and the Copper River are about with the Midnaskie or Kook river down which the Midnaskie

The first of the most interesting of the Redd BLOW KIDNAPER is the fact that they are a very rare and valuable and are now used by the M. L. (M. L. is a very common name).

The interior of the country has but little game. For many years more than any other large game, but did not kill any of it, and the signs of game are still abundant.

THE REGION

by E. W. Nelson

Independent Survey of the Department of Agriculture

During the years 1880 and 1881 the American Commercial Company had a fur-trading station on the upper Yukon, in British territory, at a great distance below the mouth of the K. or J. (K. or J. is a very common name). The station was called Fort Reliance and was in charge of Mr. J. A. McQuesten. It was afterward abandoned and is now a ruin. Mr. McQuesten was sent to the mouth of the K. or J. and not only to the marvelous development that is now taking place in that region. When Mr. McQuesten came to St. Michael in the spring of 1881 with his winter's gathering of furs I gave him a large service station and gave him the money and he undertook to make a series of daily observations for me at Fort Reliance during his stay there in the fall and winter of 1880-81. When he returned to St. Michael

of investigation on the upper Yukon in spring, and in of particular interest of the Department of Agriculture of its recovery & recovery place in 1881. It is in this report that some of the most interesting with a reported scarcity of provisions that may

locally not taken sheet of ice for a while over six months. On May 17, at 4 a. m., the ice began melting again and was still

open: "Start for St. Michael tomorrow."

During my residence at St. Michael from June, 1877, to June,

I learned from the Yukon traders that the ice breaks first

of navigation above and the opening of the great river below. The fur traders of the upper Yukon usually started as soon as the river became pretty well freed from floating ice, and were joined on their way by the traders starting lower down. The little flotilla of barges usually reached the river mouth at about the same time. By that time the river and its would-be free, and

The date for the ice to break away from the coast between the

offshore

March 31. This is a month before they used to appear along

spring on the upper river.

The following summary of these observations brings out some

as I was last season. Commencing with the four nights that came on in October the temperature sank steadily, and in December was noted the greatest cold of the winter, (-67° on the 20th). In January occurred a strange and precocious upward

occur. Following this during February there was another period of intense cold, which lasted until March 1. In this latter part of the effect of the returning sun became strikingly evident. The warmest range of temperature in any month ($+38^{\circ}$) was during March. The thermometer used was a Fahrenheit.

		°		°	°	°			
1898									
Sept.	24	21	31	41	41	34	N	W	Clear
	25	24	34	40	35	33	N		Clear.
	26	25	35	34	35	35	N	W	Cloudy - sunned a day
	27	26	36	37	36	37			
Oct.	1	27	38	49	33	36	E		Clear; cloudy
	2	27	39	42	30	29	S	E	Clear; cloudy
	3	24	28	40	32	30	E		Clear
	4	20	21	34	24	21			
	5	18	21	37	20	24			
	6	19	23	40	25	23			
	7	25	28	30	36	34			
	8	12	10	30	27	20			
	9	10	14	31	27	30	N	W	
	10	28	33	43	38	36			
	11	26	32	43	35	30			
	12	11	14	37	30	26			
	13	20	22	34	25	22			
	14	7	14	25	23	21			
	15	9	13	25	23	14			
	16	0	13	20	26	17			
	17	15	15	30	22	16			
	18	14	16	25	20	17	N	W	Clear
	19								Clear
	20	0	2	12	1	0			Clear
	21	7	1	13	3	6	Ch	W	Clear
	22	10	2	19	6	0	S	E	Cloudy; sunned in the afternoon.
	23								Cloudy, snow showers.
	24	4	8	12	9	4	S	E	Snow showers
	25	4	6	13	10	6	S	E	
		13	7	15	13	9	S	E	Cloudy
		1	3	4	2	0	Ch	W	
		1	1	4	3	1	Ch	W	Clear
		"	"	14	15	14	S	W	Clear

4. WINTER WEATHER RECORD FROM KINGSBARR

145

[illegible]

Date.	$\frac{L}{H}$	$\frac{H}{L}$	$\frac{H}{H}$	$\frac{L}{L}$	$\frac{H}{H}$	Wind.	Remarks
1891							
Dec 27	-44	47	-43	-48		S	
28	-44	40	-41	-27		S	"
29	-18	19	-16	-15		S	"
30	5	-14	15			S	"
31	-22	20	8	-6		S	"
1	-20	21	0	+	0	S W	"
2					0	S W	Stormy, snowed in the afternoon.
3	-0	1	-6	-5	5	S W	Light clouds
4	0	0	4	-4	3	S W	Light clouds
5	5	0	1	3	4	S W	Cloudy
6	0	2	-5	2	-10	S	Clear
7	-25	-2	2	+	5	S W	Cloudy, snowed in the afternoon.
8							"
9	10	12	20	18	15	S	A day, light clouds.
10							"
11	43	22	-2	-	0	S	"
12							"
13							"
14							"
15							"
16							"
17						S E	"
18							"
19							"
20						S W	A day, light clouds.
21						S W	Light clouds.
22						S W	Cloudy, snowed nearly all day.
23				+		Calm	Clear.
24						Calm	Clear 2 p.m., S. Fair 1, empty.
25							Cloudy.
26							Cloudy, snowed in the afternoon.
27						S E	"
28						S	"
29							"
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31						S	"
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A WINTER WEATHER RECORD FROM ALONDIAE

Year	Month	Day	Temp.	Wind	Clouds	Remarks
1900	Jan.	1	34	W	100	
		2	34	W	100	
		3	34	W	100	
		4	34	W	100	
		5	34	W	100	
		6	34	W	100	
		7	34	W	100	
		8	34	W	100	
		9	34	W	100	
		10	34	W	100	
		11	34	W	100	
		12	34	W	100	
		13	34	W	100	
		14	34	W	100	
		15	34	W	100	
		16	34	W	100	
		17	34	W	100	
		18	34	W	100	
		19	34	W	100	
		20	34	W	100	
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		26	34	W	100	
		27	34	W	100	
		28	34	W	100	
		29	34	W	100	
		30	34	W	100	
		31	34	W	100	
1901	Jan.	1	34	W	100	
		2	34	W	100	
		3	34	W	100	
		4	34	W	100	
		5	34	W	100	
		6	34	W	100	
		7	34	W	100	
		8	34	W	100	
		9	34	W	100	
		10	34	W	100	
		11	34	W	100	
		12	34	W	100	
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		27	34	W	100	
		28	34	W	100	
		29	34	W	100	
		30	34	W	100	
		31	34	W	100	
1902	Jan.	1	34	W	100	
		2	34	W	100	
		3	34	W	100	
		4	34	W	100	
		5	34	W	100	
		6	34	W	100	
		7	34	W	100	
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		28	34	W	100	
		29	34	W	100	
		30	34	W	100	
		31	34	W	100	

Date		max.	min.	max.	min.	Wind	Remarks
		°	°	°	°		
Dec.							
Nov.	29	0	10	32	25	SE	Clear
	30	14	25	38	37	S. W	Cloudy
	31	30	31	43	40	S.	Clear
	1	40	34	46	44	S. + +	Clear
	2	20	28	44	42	E. E. +	Snowed in the forenoon light showers of snow in the afternoon
	3	15	38	47	40	W	Clear, frost in the evening
	4	16	21	44	40	S.	Clear
	5	12	13	34	33	S.	Clear
	6		10	40	31	S. W	Clear
	7		11	31	28	S.	Clear
	8		13	33	24	S.	Clear
	9		13	33	26	S. W	Clear
	10		11	33	24	Light S. W	Clear
	11		13	36	34	E.	Light shower
	12		20	41	40	E.	Clear
	13		14	42	40	E.	Clear
	14		"	43	43	E.	Clear
	15		22	46	43	S.	Clear
	16		27	47	41	S.	Clear
	17		30	49	46	S.	Clear
	18		30	41	48	S.	Clear
	19		26	36	44	S.	Clear
	20		40	50	47	S.	Clear
	21		32	42	39	S. E.	Clear
	22		21	43	37	S. E.	Clear
	23		4	39	36	S. E.	Clear
	24		4	41	34	S.	Clear
	25		24	41	37	S. E.	Showers of snow and rain during the day
	26		19	38	36	E.	Clear
	27		27	39	35	E.	Clear
	28		31	40	36	S.	Clear
May	29	36	27	44	40	S. +	Clear
	1	40	23	40	30	S. W	Morning clear in the afternoon
	2	37	15	44	41	S. W	Showers of snow in the afternoon.
	3	23	24	36	35	Light S.	Clear
	4	20	23	33	36	S.	Clear
	5	30	19	36	28	S.	Clear
	6	30	18	35	29	S. E.	Cloudy
	7						
	8	24	18	45	41	S. W.	Clear in the afternoon.
	9	20	23	50	43	S. W	Cloudy, showery in the afternoon.

1881		Barometer					Thermometer		Remarks
Day	No.	8 A.	10 A.	4 P.	6 P.	Mean	W.	F.	
May 11	31	29	34	44	37	36	S. W.	57	Cloudy in the afternoon.
12	32	28	33	30	40	35	"	56	"
13	33	28	33	30	40	35	"	56	"
14	34	28	34	31	41	36	"	57	"
15	35	28	34	31	41	36	"	57	"
16	36	28	34	31	41	36	"	57	"
17	37	28	34	31	41	36	"	57	"
18	38	28	34	31	41	36	"	57	"
19	39	28	34	31	41	36	"	57	"
20	40	28	34	31	41	36	"	57	"
21	41	28	34	31	41	36	"	57	"
22	42	28	34	31	41	36	"	57	"
23	43	28	34	31	41	36	"	57	"
24	44	28	34	31	41	36	"	57	"
25	45	28	34	31	41	36	"	57	"
26	46	28	34	31	41	36	"	57	"
27	47	28	34	31	41	36	"	57	"
28	48	28	34	31	41	36	"	57	"
29	49	28	34	31	41	36	"	57	"
30	50	28	34	31	41	36	"	57	"
31	51	28	34	31	41	36	"	57	"

THE RUSSIAN CENSUS OF 1897

John. In the present year the population of the whole Russian Empire has never been more fully known. Inland of a census the Russian government has descended to the point on partial censuses, known under the name of "Revision" of 1857,

the nineteenth century. The "Revision" of 1857 gave a population of 64,893,645, and that of 1897, which was not completed until nearly twenty years, aggregated 122,211,111.

A word as to the census of 1897 the population of the Russian Empire is 122,211,111. The population in various parts of the Empire is as follows: European Russia, 91,188,751; Poland 14,412,601, the Caucasus, 5,722,553, Siberia, 5,161,742; Turke-

only, and the Steppes eight persons.

of European Russia. He says:

government of Yussia by the cherassians (black earth region). This region only has more than 300,000 persons, but it is a more populous government, in which is the city of Moscow (industrial district, the old city of Moscow, it contains more than 1,000,000 persons, i. e., two-thirds

of European Russia.

The most compact population is centered on the narrow strip formed part of Kiev and Podolia, the cherassians part of Chernigov and the steppe district on parts of Kharkov and Voronezh, and the cherassians part of Tver, Tver, Kazan, or Tula.

exceeds 25,000. The 20 most populous cities are as follows: St. Petersburg, 1,200,000; Moscow, 800,000; Warsaw, 511,521; Vilna,

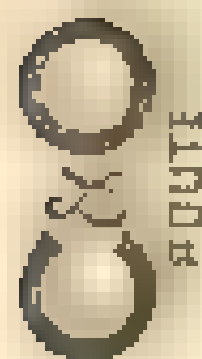
1,100,000; Kazan, 100,000; Novgorod 90,000.

A. W. C.

The map actually used by averaging of the Russian census returns is due to the map-maker of the Imperial Statistical Bureau, first used for census purposes by the United States Government in 1890.

Out of 2,000,000 persons who left their native land between 1871 and 1880 about 90 per cent. emigrated to the United States. As we had very little emigration to ward the German colonies in Africa, the government is now seeking to direct it toward certain parts of South America.

Statistics of the emigrants are used by assimilation and by legitimization



CHESAPEAKE & OHIO RY.

THE P. F. V. LIMITED

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11. The following table shows the number of people who attended the 2008 Summer Olympics in Beijing, China, and the 2012 Summer Olympics in London, England. The number of people who attended the 2008 Summer Olympics in Beijing, China, was 1.1 million more than the number of people who attended the 2012 Summer Olympics in London, England. How many people attended the 2008 Summer Olympics in Beijing, China?

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Response	Percentage
Yes, the current system is the best way to run the country	65%
No, the current system is not the best way to run the country	35%

31

1

H. W. FULLER, *Chief Food Agent, Washington, D. C.*

CALIFORNIA...

O. I expect to go there this winter. I expect some thing in your ear. The portion of your ticket reads via the

Northern Pacific Shasta Route.

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